

Original Article **Does Body Mass Index of Nursing Students Correlate with Their Attitude towards Obesity?**Salziyan B¹,* Norwati D², Ismail SB¹¹Department of Family Medicine, School of Medical Sciences, Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia²Faculty of Medicine, Universiti Sultan Zainal Abidin, Kuala Terengganu, Terengganu, Malaysianorwatidaud@gmail.com**Abstract**

Health care personnel are important role models for promoting healthy lifestyle to general populations. Being overweight and obese are commonly associated with stigmas and discriminations. Stigma against obese people is common and it may relate to individual's attitude on obesity. The study objective was to determine the correlation between body mass index of nursing students and their attitude towards obesity. A cross-sectional study was conducted between December 2011 and February 2012. Self-administered questionnaires were distributed to 297 nursing students in private colleges in Kelantan, Malaysia. Socio-demographic data, body mass index (BMI) and attitude towards obesity by using the ATOP score were obtained. Data was analyzed using SPSS version 20.0. Majority of the participants were Malays (99.7%), female (89.9%) and single (96.3%). About 64.3% had normal BMI, 18.9% underweight, 13.8% overweight, 2.4% obese type I and 0.7% obese type II. The ATOP score were ranging from 26.0 to 99.0 with mean (SD) of 62.8 (13.36). The attitude towards obese persons among the participants was more toward positive attitude. Body mass index (BMI) was skewed to the left distribution with the median (IQR) 20.8 (3.9). The correlation between attitude score and BMI was found to be not significant with p-value of 0.47 and Pearson correlation coefficient 0.04. Thus, there was no correlation between attitude towards obesity and individual's BMI. Nursing students has positive attitude towards obesity. Their BMI does not seem to affect their attitude towards obese persons and reflects that there was no stigma towards obese person.

Keywords: Overweight, obesity, attitude, attitude towards obesity.

*Author for Correspondence.

Published on: July 30th, 2018.

Introduction

Obesity has become a threat in the public health and medicine nowadays as it can give so much negative impacts especially towards the development of cardiovascular risk factors. It also has relationship with some other diseases such as type 2 diabetes, osteoarthritis, to a certain type of cancers, which these all can give a lot of impacts on psychosocial consequences of person with obesity and indirectly may affect the economic costs of the countries^[1]. The changes in eating pattern, the decreased in physical activity and low energy consumption among populations nowadays has been said to be associated to the increment in obesity trend^[2].

A few studies have reported that obesity can be associated with some discrimination and stigmas.^{3,4} Being overweight or obese may put someone into psychological and social consequences. A study done by Puhl *et al.* found that there are stigmas against obese people and are quite common and it may relate to someone's attitudes about obesity^[3]. Negative stigmas towards obese persons may exist in the working places, school or even in public places. Obese persons are often viewed as less competent, lazy, and lack in self-discipline and these may affect the wages, promotions and decisions about employment status of obese persons^[3].

Nurses play an important role in counselling and assisting obese patients who try to lose weight and in weight management programme^[5]. They are often involved in caring for patients who are obese and having obesity-related health problems^[6]. In nursing care of obese patients, the adjustment for care from the nurses is usually needed in order to provide a good care for obese patients. Patient's physical size can complicate some of the basic intervention which is needed for the health problems and therefore, the nurses play a role in anticipating difficulties and they need to have skills for taking care of obese patients^[5]. A few studies suggest health professionals' negative attitudes and biased behaviour towards obese people are similar to that of the general public^[7,8,9]. One study suggests that negative attitudes which expressed by medical professionals are often directed not just towards obesity as a health condition, but also against people who are obese^[9]. However, there are limited studies in assessing the relationship between health care providers' weight and body mass index with the attitude towards obesity in Malaysia. Thus, the correlation between nursing students' body mass index and attitude towards obesity was determined in this current study.

Methods

Study design and participants

This is a cross section study conducted between December 2011 and February 2012. The proposal of this study was approved by the Ethics Committee, Universiti Sains Malaysia. Participants were nursing students who studied in private nursing colleges in Kelantan state. There are three private colleges in Kelantan which are registered with The Ministry of Higher Education Malaysia and were named as College A, B and C for the purpose of this study. The sample size was calculated according to the objectives and the highest sample size was 318 after considering of 20% non-response rate. The inclusion criteria for the participants were those who are 18 years and above and they are available at their colleges during the data collection's time.

Sampling method

Computer-generated simple random sampling was used to select participants from each college's name lists. Due to the inequality in the number of students for each college, participants were then selected according to the ratio of 1:2:1. Therefore, 25% were selected from two colleges with quite similar number of students and another 50% were selected from the college with the highest number of students. Finally, 318 nursing students were selected to participate in the study.

Research tools

The study used a self-administered questionnaire which consists of socio-demographic data such as age, sex, race, marital status and family history of obesity. Measurement for height, weight and calculated BMI were documented after the measurement process. All participants were measured for height and weight by a trained personnel according to the standard measuring methods.¹⁰ Then, BMI were calculated with the formula of weight in kilograms divided by height in meters squared (kg/m^2), which based on World Health Organization (WHO) formula. The BMI classification was based on WHO classifications. The WHO classification has been widely used in many studies in obesity^[11,12,13].

Attitudes towards obesity were assessed using the ATOP (Attitude Toward Obese Person) scales which was developed by Allison *et al.*^[14,15]. The ATOP scale has been widely used in other previous studies^[14,16,17]. It has good reliability and validity with Cronbach's alpha of 0.7-0.8^[18]. Permission to use the scales was obtained from the scale authors and/or copyright holders. The ATOP scale consists of 3 domains which include different personality domain,

social difficulty domain and self-esteem domain. The ATOP scale consists of 20 items. Items are employed a 6-point Likert scale with responses ranging from +3 to -3, which +3 for 'strongly agree', +2 for 'moderately agree', +1 for 'slightly agree', -3 for 'strongly disagree', -2 for 'moderately disagree' and -1 for 'slightly disagree'. This scale omits '0' which indicates neutral/do not know and the participant had to answer all the questions. Items indicative of negative attitudes toward obese persons were multiplied by -1 which include items 2 to 6, items 10 to 12, items 14 to 16, item 19 and item 20. The total values were added with 60. Therefore, score range is from 0 to 120. Higher score on overall scale are indicative of more positive attitudes towards obesity.

Data was analyzed using Statistical Package for Social Sciences (SPSS), version 20.0. Descriptive analysis was used for demographic characteristics. Multiple logistic regression statistic was used to determine the association between body weight perception and weight losing practice.

Results

About 318 participants were selected to participate in the study and only 297 participants agreed to participate. The response rate was 93.3%. Table 1 summarizes the sociodemographic data of the participants. Majority of participants were female (89.9%), Malay (99.7%), single (96.3%) and has no family members with obesity (77.4%).

Table 1. Sociodemographic characteristics of the participants
^a Interquartile Range

Sociodemographic characteristic	Median (IQR ^a)	n (%)
Age (years)	21.0 (3.0)	
Sex		
Female		267 (89.9)
Male		30 (10.1)
Race		
Malay		296 (99.7)
Chinese		1(0.3)
Marital status		
Single		286 (96.3)
Married		11 (3.7)
Family members with obesity		
No		230 (77.4)
Yes		67 (22.6)

Attitude towards obese person items in ATOP scale results are shown in Table 2. Based on the results, the strongest disagreement among majority of participants was for item 4, 'Obese workers cannot be as successful as other workers' and almost half of the participants agreed that 'one of the worst things that could happen to a person

would be for him/her to become obese' with 25.3% answered 'moderately agree' and 20.9% answered 'strongly agree'. The total ATOP score ranges from 26.0 to 99.0 mean (SD) of 62.8 (13.36). Therefore, the attitude towards obese person among nursing students was towards positive attitude.

Discussion

Healthcare providers should provide the highest quality of health care for their patients^[19]. Negative attitude and bias towards obese persons are known among health care personnels^[7,8,9]. The presence of negative attitude and bias towards obese person may hinder the effort in providing optimal care for obese patient as patient may feel uncomfortable and feel that they are not welcomed to the health care setting^[19]. Negative attitude towards obese person may influence either in judgement, interpersonal behaviour or decisions about obese person and it may also relate with the management of obese patients. Some studies have reported that the presence of stigmas and negative attitude in employment setting may also influence promotion and wages in workplace setting as obese

Table 2. Attitude towards obesity using the ATOP scale.

Item	N (%)					
	Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree
1. Obese people are as happy as non-obese people	54 (18.2)	92 (31.0)	53 (17.8)	36 (12.1)	56 (18.9)	6 (2.0)
2. Most obese people feel that they are not as good as other people	17 (5.7)	65 (21.9)	45 (15.2)	70 (23.6)	84 (28.3)	16 (5.4)
3. Most obese people are more shy than the other people	9 (3.0)	40 (13.5)	39 (13.1)	74 (24.9)	106 (35.7)	29 (9.8)
4. Obese workers cannot be as successful as other workers.	102 (34.3)	141 (37.5)	33 (11.1)	10 (3.4)	8 (2.7)	3 (1.0)
5. Most non obese people would not want to marry anyone who is obese	21 (7.1)	87 (29.3)	68 (22.9)	56 (18.9)	43 (14.5)	22 (7.4)
6. Severely obese people are usually untidy	40 (13.5)	104 (35.0)	73 (24.6)	47 (15.8)	25 (8.4)	8 (2.7)
7. Obese people are usually sociable	10 (3.4)	39 (13.1)	59 (19.9)	87 (29.3)	86 (29.0)	16 (5.4)
8. Most obese people are not dissatisfied with themselves.	28 (9.4)	97 (32.7)	101 (34.0)	45 (15.2)	22 (7.4)	4 (1.3)
9. Obese people are just as self-confident as other people.	15 (5.1)	60 (20.2)	78 (26.3)	75 (25.3)	49 (16.5)	20 (6.7)
10. Most people feel uncomfortable when they associate with obese people	55 (18.5)	121 (40.7)	63 (21.2)	35 (11.8)	17 (5.7)	6 (2.0)
11. Obese people are often less aggressive than non-obese people.	11 (3.7)	75 (25.3)	80 (26.9)	57 (19.2)	55 (18.5)	19 (6.4)
12. Most obese people have different personalities than non-obese people	12 (4.0)	24 (8.1)	45 (15.2)	80 (26.9)	111 (37.4)	25 (8.4)
13. Very few obese people are ashamed with their weight	11 (3.7)	51 (17.2)	56 (18.9)	79 (26.6)	80 (26.9)	20 (6.7)
14. Most obese people resent normal weight people	15 (5.1)	29 (9.8)	34 (11.4)	83 (27.9)	95 (32.0)	41 (13.8)
15. Obese people are more emotional than non-obese people	13 (4.4)	47 (15.8)	66 (22.2)	63 (21.2)	85 (28.6)	23 (7.7)
16. Obese people should not expect to lead normal lives	78 (26.3)	127 (42.8)	55 (18.5)	19 (6.4)	15 (5.1)	3 (1.0)
17. Obese people are just healthy as non-obese people	40 (13.5)	87 (29.3)	100 (33.7)	32 (10.8)	29 (9.8)	9 (3.0)

18. Obese people are just as sexually attractive as non-obese people	15 (5.1)	36 (12.1)	59 (19.9)	76 (25.6)	96 (32.3)	15 (5.1)
19. Obese people tends to have family problems	74 (24.9)	100 (33.7)	76 (25.6)	28 (9.4)	16 (5.4)	3 (1.0)
20. One of the worst things that could happen to a person would be for him/her to become obese.	32 (10.8)	45 (15.2)	36 (12.1)	47 (15.8)	75 (25.3)	62 (20.9)

employees commonly viewed as lazy, incompetent and having poor discipline ^[19,3].

There is other study which suggests that personal experience on obesity among health care personnel may soften the negative attitudes toward obese persons ^[20]. In the current study, it was found that nursing students in private colleges have more favourable attitude toward obese person. We expect that health care providers, either the registered or in-training should have lower stigmatizing attitudes when compared to the general public as they have medical knowledge regarding obesity and its causes ^[21]. Our study is almost similar to a study done in Hong Kong by Poon *et al* ^[6]. However, the study compared both attitudes toward obesity among nursing students and registered nurses, which found that nursing students have more favourable attitude towards obese person as compared to the registered nurses, who are more towards the negative attitude towards obese person. Based on the previous study, despite the presence of bias and negative attitude toward obese person among health care providers, it does not affect the delivery of care for obese patients ^[22].

In the current study, we found that there was no significant correlation between attitude score (ATOP score) with BMI. This finding was comparable with few other studies which were done in different population samples which found that there was no significant correlation between ATOP score with BMI. ^[23,17] We believe that attitude does not depend solely on BMI. There are other factors that could influence attitudes toward obese person other than BMI, such as social norm, culture, belief and knowledge ^[23].

Conclusions

As a conclusion, it is important to alleviate the negative attitude and obesity stigma among healthcare provider in-training in order to help them to provide the best care and be able to plan strategies to encourage behaviour change in obese person without any stigma and bias environment in the future. We believe that the attitude towards obesity could be one of the barriers for obese person to come and seek intervention for weight management. The refinement in interventions to avoid any unintended consequences as a result of stigmas should be done in order to maximize the effectiveness of weight interventions for behaviour change in obese person later.

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